

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A process for the treatment of carbonaceous material comprising the steps of

- ~~iv)~~ i) introducing the material, into a chamber having closure means,
- ~~v)~~ ii) extracting or displacing oxygen from the chamber so as to provide a substantially oxygen-depleted atmosphere,
- ~~vi)~~ iii) effecting a preliminary treatment of the material by irradiating with electromagnetic radiation of sufficient power and for a sufficient period to cause substantial degradation of the carbonaceous material to an ash-like residue;
- ~~(iv)~~ iv) thereafter, introducing oxygen and air and at least one combustible gas into the said chamber, and
- ~~(vi)~~ v) igniting said at least one combustible gas whereby to cause combustion and reduce the residue from the irradiation step to a fine ash.

2. (Previously Presented) The process of claim 1, in which step v) is performed by removing the residue resulting from step ii) from the said chamber to a second chamber, equipped with means for introducing oxygen or air and the said at least one combustible gas.

3. (Previously Presented) The process of Claim 1, in which ignition of the said at least one combustible gas is initiated by further irradiation with electromagnetic radiation.

4. (Previously Presented) The process of Claim 1, in which step ii) is performed by introducing an inert gas or oxygen-depleted air into the said at least one chamber whereby substantially to fill the said at least one chamber.
5. (Previously Presented) The process according to Claim 4, in which the said inert gas is nitrogen.
6. (Previously Presented) The process of Claim 1, in which step iii) is performed by irradiating the material with microwave radiation.
7. (Previously Presented) The process of Claim 1, including the step of weighing the carbonaceous material to determine the energy level and/or time for irradiation.
8. (Previously Presented) The process of Claim 1, further including the step of cooling the solid products of step v).
9. (Previously Presented) The process of Claim 1, including the further step of collecting the solid products of step v).
10. (Previously Presented) The process of Claim 1, further comprising the step of delivering the said collected products to a delivery point.

11. (Previously Presented) The process of Claim 1, including the further step of pre-heating the said material before step iii).
12. (Previously Presented) The process of Claim 1, in which the gaseous products of steps iii) and/or v) are trapped by chemical reaction or physical transformation.
13. (Previously Presented) A process for the cremation of the human or animal body comprising the introduction of a body within a coffin into a chamber having closure means, and performing thereon the process of Claim 1.
14. (Previously Presented) The process of Claim 13, in which prior to step iii) there is effected a partial opening of the coffin.
15. (Previously Presented) The process of Claim 14, in which the said partial opening is performed by mechanical means.
16. (Previously Presented) The process of Claim 14, in which the said partial opening is performed by heating said coffin and body.
17. (Currently Amended) Apparatus for the treatment of carbonaceous material comprising a housing defining at least one chamber and having an opening for introducing the material into the said at least one chamber together with closure means for closing the said at least one chamber, the housing also comprising means for extracting or displacing oxygen from

the said at least one chamber so as to provide a substantially oxygen-depleted atmosphere in the said at least one chamber, means for irradiating the material in the said at least one chamber with electromagnetic radiation of sufficient power and for a sufficient time so as to cause degradation of the said material to a residue, means for thereafter admitting oxygen or air and at least one combustible gas into the presence of said residue, and means for ignition of the said combustible gas within the said at least one chamber so as to cause substantial combustion and reduce the residue from the irradiation step to a fine ash.

18. (Previously Presented) The apparatus of claim 17, in which said means for ignition of said at least one combustible gas comprises irradiation with electromagnetic radiation.

19. (Previously Presented) The apparatus of Claim 17, further comprising means for weighing the carbonaceous material prior to, or upon introduction of the said material into the said at least one chamber.

20. (Previously Presented) The apparatus of Claim 17, further comprising means for cooling the solid products of the said combustion.

21. (Previously Presented) The apparatus of Claim 20, in which the said cooling means comprise liquid nitrogen cooling means.

22. (Previously Presented) The apparatus of Claim 17, further comprising means for collection of the said products of combustion.

23. (Previously Presented) The apparatus of Claim 22, further comprising means for the delivery of said products to a delivery point.

24. (Previously Presented) The apparatus of Claim 17, further comprising means for pre-heating the said carbonaceous material.

25. (Previously Presented) The apparatus of Claim 17, in which the said means for extracting or displacing oxygen from said at least one chamber comprise means for introducing a substantially inert gas or oxygen-depleted air whereby to substantially fill the said at least one chamber.

26. (Previously Presented) The apparatus of Claim 25, in which said inert gas is nitrogen.

27. (Currently Amended) The apparatus of Claim ~~27~~ 17, further comprising means for trapping the gaseous products of said combustion.

28. (Previously Presented) The apparatus of Claim 17, in which the said at least one chamber is formed in a portable housing, said housing having means for connection to an external energy source.

29. (Previously Presented) The apparatus of Claim 17 adapted for the cremation of bodily remains.

30. (Previously Presented) The apparatus of Claim 29, in which the said opening allows introduction of said bodily remains within a coffin, and in which there are provided means for effecting at least partial opening of the said coffin.

31. (Canceled)

32. (Previously Presented) The apparatus of Claim 29, in which said means for effecting the said at least partial opening of the coffin comprise or include means for heating the said coffin and body.

33. (Previously Presented) The apparatus of Claim 29 further comprising means for storage of said human body and/or said coffin.

34. (Previously Presented) The apparatus of Claim 33, in which said storage means comprise refrigeration means.

35. (Previously Presented) The apparatus of Claim 34, in which said refrigeration means comprise liquid nitrogen refrigeration means.

36. (Previously Presented) The apparatus of Claim 17, in which the irradiating means comprise a single transducer or array of transducers whereby electromagnetic radiation is selectively directed into said at least one chamber.